ASOS MODIFICATION NOTE 15 (for Electronics Technicians)
Engineering Division
W/OSO321:BGM

SUBJECT	:	Installation of Port Sharing Device Memory Board
PURPOSE	:	To add maintenance capability and operational enhancements for the ASOS.
EQUIPMENT AFFECTED:		ASOS
PARTS REQUIRED	:	Parts listed in installation instructions
MOD PROCUREMENT	:	The above parts will be provided by NLSC as an ASOS Field Modification Kit (FMK) S100-FMK057. ECP E93SM05F042
SPECIAL TOOLS REQUIRED	:	None
TIME REQUIRED	:	1 hour
EFFECT ON OTHER INSTRUCTIONS	:	Must be completed concurrent with ASOS Modification Notes 10 and 14. Attached to this modification note is a revised modification index for EHB-11, Volume 2, Section 3.6. Also attached is a list of Field Modification Kits generated for ASOS. Detach these indexes and insert them in EHB-11, Volume 2, Section 3.6.
CERTIFICATION STATEMENT	:	This modification is being tested for operational integrity in the Engineering Design Branch laboratory and at St. Cloud, MN (STC).

GENERAL

This modification note provides installation and checkout procedures to add an additional memory board for port sharing device (PSD) operation. The PSD is a software task executing within the acquisition control unit (ACU) that enables the single port on the Remote Terminal to AFOS (RTA) to communicate with both ASOS and the Auxiliary Backup Terminal (ABT).

Installation of this modification can only be completed on systems with ACU software version 2.1 or later. Refer to ASOS Modification Note 10.

PROCEDURE

Attached are the installation and checkout procedures in FMK#057.

BEFORE INSTALLING FIRMWARE

1. Call the AOMC at 1-800-242-8194. Inform the person who answers the phone at which office you will be installing new firmware.

2. For commissioned sites, get approval of the responsible MIC/OIC before starting installation. For non-commissioned sites, the el tech must coordinate with the site MIC/OIC before starting installation. You may install on any day of the month if permission is granted and the restrictions in steps 3 and 4 are complied with.

3. **Commissioned Sites Only**: Do **not** start installation during bad weather, precipitation, instrument flight rule (IFR) conditions, or if any of those conditions is expected within 3 hours. These meteorological conditions will be defined by the responsible MIC/OIC.

4. Do not start firmware installation at a time that will conflict with scheduled synoptic observations at 00, 03, 06, 09, 12, 15, 18, and 21Z.
5. Immediately before beginning work at NWS staffed sites, the MIC/OIC/ Observer will inform the tower and any other critical users that ASOS will be shut off for firmware upgrade (unstaffed sites, the el tech will inform tower).
6. Do not begin the installation process, until immediately after an hourly observation has been transmitted. At NWS-staffed sites, normal backup observing procedures will be implemented.

7. The system voice function will automatically broadcast "not available" message when the ACU power is turned off.

8. Make the appropriate SYSLOG entries (MAINT-ACT-FMK) #057.

AFTER INSTALLING FIRMWARE

9. When ASOS is restarted at unstaffed sites, call to inform towers using CVDs and OIDs that the work is complete. (At staffed sites, the MIC/OIC observer will call the tower).

10. If on-site NWS staff provides backup while the installation is underway, no special observation is needed when ASOS is restarted. Proceed to step 11.

    If there is no backup on site and a record observation was missed during the installation, a special observation must be taken when ASOS is restarted. The el tech should take the following steps at the ASOS keyboard after installation:

    a. Press [SIGN].
    b. Type his/her initials and press [RETURN].
    c. Type the observer level password and press [RETURN].
    d. Press [GENOB].
    e. Press [SPECL].
    f. Press [EXIT].
    g. Press [SIGN].
    h. Type his/her initials again and press [RETURN].
    i. Press [RETURN] twice. This signs the "observer" off ASOS.
    j. Leave ASOS running.

Note: The "observer" must sign off before the 5-minute edit time is up.

11. Inform office staff that ASOS is again operational. The chart below indicates how long it takes after start up for ASOS to report each observation element automatically.
Times Needed for Elements to be Reported Automatically

	Minimum	Maximum
Pressure	60 seconds	10 minutes
Precipitation Amount	60 seconds	*
Wind direction	2 minutes	7 minutes
Wind speed	2 minutes	7 minutes
Precipitation Type	2 minutes	*
Temperature	5 minutes	10 minutes
Dew Point	5 minutes	10 minutes
Visibility	10 minutes	15 minutes
Obstruction to Visibility *	10 minutes	
Ceiling	30 minutes	35 minutes

* Maximum time not applicable since phenomena may not be present. Minimum time applies if phenomena are present.

12. Verify that ASOS transmitted an hourly observation. Call the AOMC at 1-800-242-8194 and tell the operator:

    a. Your location,
    b. That installation of the new firmware has been completed, and
    c. That ASOS is operational.

13. Enter in the SYSLOG that maintenance has been completed.

14. At an expansion site with ATCT, the el tech will contact ATCT and supply information on the following:

    a. ASOS maintenance completed,
    b. ASOS restored to service, and
    c. Tower CVDs and OIDs need to be turned on, and TRACON asked to turn on their displays.

REPORTING MODIFICATION

Target date for completing this modification is 30 days after receipt of parts. Report completed modification on WS Form H-28, Engineering Progress Report, for each system per instructions in EHB-4, part 2, using reporting code ASOS.

Make appropriate entries in the SYSLOG using the Maintenance Action keys, Field Modification keys, and comment fields. Follow these steps:

1. Log on as TECH.
2. Key the MAINT screen.

3. Key the ACTION page.
4. Key START - Stop here and perform the modification FMK-057. After FMK-057 is complete, log on system.
5. Key the MAINT screen.
6. Key the ACTION page.
7. Key FMK - Enter the Field Mod Kit (FMK) number as follows: FMK057.
   On the second line of the screen verify that only FMK057 is displayed. Complete by entering **Y** in the Y/N if only FMK057 is displayed.
8. Check the SYSLOG and verify the FMK message. Notify the AOMC via telephone that FMK 057 is complete.

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Attachments

W/OSO321:BGMcCormick:713-1834:3/25/94:rev.5/18/94
WP51 Files: AMOD15.H11, EHB-11 disk 11d
Spellcheck sol 5/18/94

Appendix A

Instructions Field Modification Kit
PORT SHARING DEVICE

PARTS LIST

PART NUMBER	QTY	NOMENCLATURE
62828-47028-20	1 ea	Memory board
62828-90197-6	1 ea	ABT adaptor
62828-90197-7	1 ea	RTA adaptor

62828-47014	1 ea	SIO board
62828-90148-1	1 or 2 ea	RS232 surge adaptor
62828-90206-2	6 ea	RJ45 connector
62828-90205-2	50 ft	8-wire Telco cable
M24308/26-1	4 or 8 ea	Screw lock assembly
62828-40236-1	1 ea	NWS RTA label
62828-40237-1	1 ea	NWS ABT label
62828-40096-1	1 ea	ACU stuffing chart

NOTE: Two RS232 SIO ports are needed to install the port sharing device. Install SIO board only if system does not have two unused RS232 ports.

PROCEDURE

1. On OID press REVUE SITE - CONFG - COMMS. Are there two unused RS232 ports available?

   NOTE: SIO #1 cannot be used for Port Sharing Device.

2. If there are, record the spare port locations (e.g., SI05-3 & SI05-4). If there are not two spare SIO ports available, an additional board will need to be installed; record how many SIO boards are currently installed in system.

   SPARE SIO PORT 1. 2. No. SIO BOARDS

3. ACU CLASS II SYSTEMS ONLY. Set output power switch on UPS status panel 1A4 to 0 (OFF).

4. Remove facility power from ACU.

5. Remove the blank panel from VME slot 1A2A4.

6. Remove IACK jumper from rear of VME backplane slot 1A2A4.

7. Install memory board P/N 62828-47028-20 in VME slot 1A2A4. **Install jumper J34B on memory board before installing.** See Site Technical Manual page 2-207.

8. Remove old stuffing chart from ACU front door and install new stuffing chart provided in FMK.

ACU-SIO (RS-232) BOARD JUMPER CONFIGURATIONS

SIO #2 (1A2A6)		SIO #3 (1A2A7)		SIO #4 (1A2A8)	
62828-47014-10		62828-47014-20		62828-47014-30	
REF DES	DISPOSITION	REF DES	DISPOSITION	REF DES	DISPOSITION
JA1	IN	JA1	IN	JA1	IN

JA2	OUT	JA2	OUT	JA2	OUT
JA3	IN	JA3	IN	JA3	IN
JA10	OUT	JA10	OUT	JA10	OUT
JA11	IN	JA11	IN	JA11	IN
JA12	IN	JA12	IN	JA12	IN
JA13	IN	JA13	IN	JA13	IN
JA14	IN	JA14	IN	JA14	IN
JA15	IN	JA15	IN	JA15	IN
J1	OUT	J1	OUT	J1	OUT

SIO #2 (1A2A9)		SIO #3 (1A2A10)		SIO #4 (1A2A11)	
62828-47014-40		62828-47014-50		62828-47014-60	
REF DES	DISPOSITION	REF DES	DISPOSITION	REF DES	DISPOSITION
JA1	IN	JA1	IN	JA1	IN
JA2	OUT	JA2	OUT	JA2	OUT
JA3	IN	JA3	IN	JA3	IN
JA10	OUT	JA10	OUT	JA10	OUT
JA11	IN	JA11	IN	JA11	IN
JA12	IN	JA12	IN	JA12	IN
JA13	IN	JA13	IN	JA13	IN
JA14	IN	JA14	IN	JA14	IN
JA15	IN	JA15	IN	JA15	IN
J1	OUT	J1	OUT	J1	OUT

NOTE: Perform steps 9-12 only if a SIO board needs to be added to system; otherwise, skip to step 13.

9. In VME rack 1A2 remove the blank panel from first available SIO slot (1A2A9, 1A2A1O, or 1A2A11).

10. Configure SIO board P/N 62828-47014 per chart in figure 1. For example, if SIO board is SIO #6 (1A2A1O), set jumpers for a 62828-47014-50 board and mark board with appropriate dash number.

11. Install SIO board in slot from which the blank panel was removed.

12. Remove IACK jumper from rear of VME backplane slot where SIO board was installed in previous step.

13. Locate spare SIO cable bundle inside ACU. Find cables for SIO ports recorded in step 2 or the first two ports of the new SIO board just installed.

14. Route these cables along the existing harness that runs to the I/O panel 1A9.

15. On I/O panel locate connectors 1A9J24 (AFOS HARDWIRE SPARE) and 1A9J27 (FAA TCCC). If these positions have connectors in them, disconnect cables that are attached to them on the inside of ACU. DO NOT remove surge protectors.

16. If connectors are not already installed, remove the blank panel from the connector slots 1A9J24 and 1A9J27.

17. Install surge protector P/N 62828-90148-1 in slots 1A9J24 and 1A9J27 using screw lock assemblies P/N M24308/26-1 on both ends of surge protectors.

    NOTE: Place end of surge protector that has label closest to it next to I/O panel.

18. Install label NWS RTA covering AFOS HARDWIRE SPARE above 1A9J24.

19. Install label NWS ABT covering FAA TCCC above 1A9J27.

20. Connect one cable routed along harness to I/O panel in step 14 to 1A9J24 NWS RTA. Record the SIO port number. This will be needed for system setup.

    RTA PORT SIO

21. Connect one cable routed along harness to I/O panel in step 14 to 1A9J27 NWS ABT. Record the SIO port number. This will be needed for system setup.

    ABT PORT SIO

22. Connect an eight-wire Telco cable between 1A9J24 NWS RTA and J13 of RTA computer using adaptor P/N 62828-90197-7, Telco cable P/N 62828-90205-2, and two each RJ45 connectors P/N 62828-90206-2. RJ45 connectors are crimped "straight through":

P1-1 <---------> P2-1
P1-2 <---------> P2-2
P1-3 <---------> P2-3
P1-4 <---------> P2-4
P1-5 <---------> P2-5
P1-6 <---------> P2-6
P1-7 <---------> P2-7
P1-8 <---------> P2-8

23. Connect an eight-wire Telco cable between 1A9J27 NWS ABT and SWITCH BOX J8 using adaptor P/N 62828-90197-6, Telco cable P/N 62828-90205-2, and two each RJ45 connectors P/N 62828-90206-2. RJ45 connectors are crimped "straight through":

P1-1 <---------> P2-1
P1-2 <---------> P2-2
P1-3 <---------> P2-3
P1-4 <---------> P2-4
P1-5 <---------> P2-5
P1-6 <---------> P2-6
P1-7 <---------> P2-7
P1-8 <---------> P2-8

24. Connect an eight-wire Telco cable between SWITCH BOX J9 and COM1 of ABT computer using Telco cable P/N 62828-90205-2 and two each RJ45 connectors P/N 62828-90206-2. RJ45 connectors are crimped "straight through":

P1-1 <---------> P2-1
P1-2 <---------> P2-2
P1-3 <---------> P2-3
P1-4 <---------> P2-4
P1-5 <---------> P2-5
P1-6 <---------> P2-6
P1-7 <---------> P2-7
P1-8 <---------> P2-8

25. Apply facility power to ACU.

26. ACU CLASS II SYSTEMS ONLY. Set output power switch on UPS 1A4 to 1 (ON).

27. Sign on OID as a TECHNICIAN.

NOTE: Perform step 28 only if SIO board was added in step 11; otherwise, skip to step 29.

28. On OID press REVUE - SITE - CONFG - HDWE - CHANG and move cursor to ACU SIO. Press SEQN one time (increase SIO quantity by one). Press BACK - BACK - COMMS and go to step 30.

29. On OID press REVUE - SITE - CONFG - COMMS and move cursor to SIO slot recorded in step 20.

30. Press CHANG and set up port as follows:

FUNCTION	**RTA**	BITS/CHAR	**8**
STATUS	**ENABLED**	STOP BITS	**1**
BAUD RATE	**1200**	HANDSHAKE	**NONE**
PARITY SELECT	**NONE**	CONNECTION	**HARDWIRE**

31. Press BACK and move cursor to SIO slot recorded in step 21.

32. Press CHANG and set up port as follows:

FUNCTION	**ABT**	BITS/CHAR	**8**		
STATUS	**ENABLED**	STOP BITS	**1**		
BAUD RATE	**1200**	HANDSHAKE		**NONE**	
PARITY SELECT	**NONE**	CONNECTION			**HARDWIRE**

33. Press EXIT.

34. A PSD diagnostic feature is available if there is a printer or a VDU locally configured in the system. A spare SIO port may be used if there is a terminal or printer and cables available. To access PSD DIAG feature, sign on OID as a technician and press REVUE - SITE - CONFG - COMMS.

35. Move cursor to Printer, VDU, or the spare SIO port to be used.

36. Press CHANG and set up port as follows:

FUNCTION	**PSD DIAG**	BITS/CHAR	**8**		
STATUS	**ENABLED**	STOP BITS	**1**		
BAUD RATE	**9600**	HANDSHAKE		**NONE**	
PARITY SELECT	**NONE**	CONNECTION			**HARDWIRE**

37. Press EXIT. PSD diagnostic device is now ready to display or print messages pertaining to the operation of the PSD.

38. After PSD checkout is complete the SIO port used for PSD DIAG should be reconfigured to its original assignment.